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Lexicographic variational inequalities with applications

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Abstract

In this article, we consider equivalence properties between various kinds of lexicographic variational inequalities. By employing various concepts of monotonicity, we show that the usual sequential variational inequality is equivalent to the direct lexicographic variational inequality or to the dual lexicographic variational inequality. We establish several existence results for lexicographic variational inequalities. Also, we introduce the lexicographic complementarity problem and establish its equivalence with the lexicographic variational inequality. We illustrate our approach by several examples of applications to vector transportation and vector spatial equilibrium problems.

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Keywords

Existence results, Lexicographic complementarity problem, Lexicographic variational inequality, Sequential variational inequality, Vector equilibrium models